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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,969	01/15/2004	Shing Chuang	3304.2.110	4264

21552 7590 08/08/2007
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EXAMINER

HOUSHMAND, HOOMAN

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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08/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/757,969

Applicant(s)

CHUANG, SHING

Examiner

Hooman Houshmand

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 04/12/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kadambi (PGPUB 20050232274).

Regarding **Claim 1**. Kadambi teaches:

A method for allocating (Once the higher priority queues achieve their minimum bandwidth value, class of service manager 133 allocates any remaining bandwidth based upon any occurrence of exceeding the maximum bandwidth for any one priority queue Page 32 para 394 lines 15-20) data packet flows (packet flow is controlled by egress managers para 390 p 31 lines 12-13, Realtime applications can be implemented through a Maximum Allowable Latency Parameter, which enables COS manager 133 to schedule packet transmission such that packets on a particular COS queue are not delayed for more than a maximum allowable latency time para 290 p 22 lines 24-29) among a plurality of data channels (Para 71 p 3 lines 1-2: any number of ports can be provided.) of a network node (packets are forwarded by the nodes within the network

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para 292 p 22 lines 13-14), comprising steps of: classifying (classify and forward traffic entering the switch based upon predetermined policies para 292 p 22 lines 17-18.

based upon the packet classification, actions including sending of the packet to other ports, sending the packet on certain priority queues Para 236 P 17 lines 9-12, sending the packets to a mirrored port Para 239 p 17 lines 3-6) data packets to be transmitted via said data channels into a plurality of data packet flows, wherein a first data packet flow is assigned to and then queues (Queue value used when sending the Packet to the Egress Port para 307 p 22, each EPIC and each GPIC contains a FIFO queue para 334 p 26 line 16 output queue for a particular port para 386 p 30 line 24 packet sent to the appropriate output queue para 386 p 30 line 42) in a first data channel to be transmitted (first data packet destined for a given address para 223 p 15 lines 1-3, first transmission link para 7 p 1 line 12); obtaining a first flow index (the rate or flow, of the stream of packets selected by a classifier para 289 p 21 lines 8-9) according to the amount of a first data packet flow queuing in said first data channel (determining a flow rate of the first frame para 7 p 1 lines 5-6), and the amount of a second data packet flow (determining a flow rate of the second frame para 7 p 1 lines 5-6) (a first data packet and a second data packet come into a single port interface controller 20 para 221 p 14 lines 2-3) assigned to said first data channel; and determining whether said second data packet flow is to be transferred from said first data channel to another data channel (determining if the second frame is a candidate for link switching para 7 p 1 lines 9-10) to be transmitted according to a comparing result of said first flow index and a threshold value (method for load balancing in a link aggregation environment including the steps

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of determining a length of a first frame and a length of a second frame entering the link aggregation environment. Thereafter, determining a flow rate of the first frame and the second frame entering the link aggregation environment. Then a step of determining if the flow rate exceeds a predetermined flow rate threshold is undertaken, and thereafter, a step of determining if the first frame and the second frame are candidates for link switching is completed. As a final step, the method switches a transmission link for the second frame from a first transmission link to a second transmission link para 7 p 1).

Regarding **Claim 2**. Kadambi teaches:

wherein said step of classifying (classify and forward traffic entering the switch based upon predetermined policies para 292 p 22 lines 17-18. Based upon the packet classification, actions including sending of the packet to other ports, sending the packet on certain priority queues Para 236 P 17 lines 9-12, sending the packets to a mirrored port Para 239 p 17 lines 3-6) said data packets into said data packet flows comprises sub-steps of: performing an operation of a specified tag value (para [0191] p 12 Tag Identifier as described in IEEE 802.1Q standard) included in each of said data packets to obtain respective feature values ([0186] p 11 identifies the Trunk selection. the destination address. Source Mac Address. Destination Mac Address. Source IP Address. Destination IP Address) of said data packets; and classifying the data packets having the same feature value in the same data packet flow (para [0210] p 12 placing all similarly tagged members in ports. Para 212 p 12 port bitmap identifies all of the ports on which the packet should be sent).

Regarding **Claim 3**. Kadambi teaches:

wherein said tag value includes a destination media access control (DMAC) address, an internet protocol (IP) address and a transmission control protocol (TCP) address

([0186] p 11 Destination Mac Address. IP Address)

([0239] p 17 lines 8-11 filtering logic selectively parses predetermined fields from the incoming data packets, obtaining the values of MAC, IP, TCP).

Regarding **Claim 4**. Kadambi teaches:

wherein said operation is an exclusive OR (XOR) operation.

([0338] p 27 lines 79-80: the source MAC address is XORED with the destination MAC address.)

Regarding **Claim 5**. Kadambi teaches:

wherein said second data packet flow is the one assigned to said first data channel and having the least data packet amount at a certain time point. (second frame entering the link para 7 p 1)

Regarding **Claim 6**. Kadambi teaches:

wherein said first flow index is the sum of the amount of said first and said second data packet flows.

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(The reference determines a flow rate of the first frame and the second frame. Then it compares the combined flow rate to a flow rate threshold [0007] p 1)

Regarding **Claim 7**. Kadambi teaches:

wherein said transference determining step comprises sub-steps of: obtaining a second flow index according to the amount of said second data packet flow and the amount of a third data packet flow queuing in a second data channel (Para 71 p 3: any number of ports can be provided) where said second data packet flow is to be transferred when said first flow index is greater than said threshold value; and transferring said second data packet flow from said first data channel to said second data channel to be transmitted when said second flow index is no greater than said threshold value (The reference teaches that multiple frames with different flow rates can be carrier over a link. When the aggregate flow rate exceeds a threshold, another link is selected to carry the additional load. The new link has to be underutilized to carry this extra load Para 7 p 1, [0164] p10).

Regarding **Claim 8**. Kadambi teaches:

wherein said transference determining step comprises sub-steps of: obtaining a second flow index according to the amount of said second data packet flow and the amount of a third data packet flow queuing in a second data channel where said second data packet flow is to be transferred when said first flow index is greater than said threshold value; and remaining said second data packet flow to be assigned to said first data channel

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when said second flow index is greater than said threshold value (The reference teaches that multiple frames with different flow rates can be carrier over a link. When the aggregate flow rate exceeds a threshold, another link is selected to carry the additional load. The new link has to be underutilized to carry this extra load Para 7 p 1, [0164] p10).

Regarding **Claim 9**. Kadambi teaches:

wherein said transference determining step comprises sub-steps of: obtaining a second flow index according to the amount of said second data packet flow and the amount of a third data packet flow queuing in a second data channel (Para 71 p 3 lines 1-2: any number of ports can be provided) where said second data packet flow is to be transferred when said first flow index is greater than said threshold value; transferring said second data packet flow from said first data channel to said second data channel to be transmitted when said second flow index is no greater than said threshold value (The reference teaches that multiple frames with different flow rates can be carrier over a link. When the aggregate flow rate exceeds a threshold another link is selected to carry the additional load. The new link has to be underutilized to carry this extra load Para 7 p 1, [0164] p10); and remaining said second data packet flow to be assigned to said first data channel when said second flow index is greater than said threshold value (method for load balancing in a link aggregation environment including the steps of determining a length of a first frame and a length of a second frame entering the link aggregation environment. Thereafter, determining a flow rate of the first frame and the second frame

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entering the link aggregation environment. Then a step of determining if the flow rate exceeds a predetermined flow rate threshold is undertaken, and thereafter, a step of determining if the first frame and the second frame are candidates for link switching is completed. As a final step, the method switches a transmission link for the second frame from a first transmission link to a second transmission link para 7 p 1).

Regarding **Claim 10**. Kadambi teaches:

wherein said second data channel has the least amount of data packets in queue than the other data channels at a certain time point (preventing port starvation [0167] p 10 line 6) (when the amount of packets in queue reaches the low watermark value, the port is enabled. This controls the data flow of all ports [0164] p 10)

Regarding **Claim 11**. Kadambi teaches:

wherein said transference determining step is repetitively performed at a constant interval (A timer/counter has a preset time period, at the end of which the new port map is provided [0387] p 31 lines 5-9).

Regarding **Claim 12**. Kadambi teaches:

further comprising a step of transmitting a broadcast data packet ([0104] p6 Broadcast that identifies the port the packet should be sent to.) after said first data packet flow via said first data channel when said second data packet flow is determined to be transferred from said first data channel to a second data channel (packet assembly and

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notification to the respective ports, rerouting of packets via a global buffer manager, as well as handling packet flow [0161] p 9 lines 3-6).

Regarding **Claim 13**. Kadambi teaches:

wherein said second data packet flow starts to be transferred (transferring multiple packets of data (line 13); transferring cells, checking active ports, queue availability [0403] p 33 lines 21-24) via said second data channel after said broadcast data packet is received by at least one of said data channels (if the incoming packet were a broadcast packet, each egress manager 76 to which the packet is directed will receive the PID [0392] p 31 lines 12-14).

Regarding **Claim 14**. Kadambi teaches:

wherein said second data packet flow starts to be transferred via said second data channel after a preset time period (the link is switched, determined by the preset threshold value [0450] p 38 line 17-18. After every arbitration time period the next I/O module with a valid request would be given access to the C channel 81 [0090] p 5 lines 8-9. A timer/counter has a preset time period, at the end of which the new port map is provided [0387] p 31 lines 5-9) from the insertion of said broadcast data packet to be transmitted via the first data channel (for broadcast messages, the message is forwarded to uncongested ports [0386] p 31 lines 54-56).

Regarding **Claim 15**. Kadambi teaches:

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wherein said second data packet flow starts to be transferred (transferring multiple packets of data (line 13); transferring cells, checking active ports, queue availability [0403] p 33 lines 21-24) via said second data channel after said broadcast data packet is received by at least one of said data channels (the incoming packet is a broadcast packet, each egress manager 76 to which the packet is directed will receive the PID. [0392] p 31 lines 12-14), and if there is no data channel receiving said broadcast data packet at the end of a preset time period, said second data packet flow starts to be transferred via said second data channel (the link is switched, determined by the preset threshold value [0450] p 38 line 17-18) (After every arbitration time period the next I/O module with a valid request would be given access to the C channel 81 [0090] p 5 lines 8-9) (A timer/counter has a preset time period, at the end of which the new port map is provided [0387] p 31 lines 5-9).

Regarding **Claim 16**. Kadambi teaches:

wherein said broadcast data packet comprises an identifying code of said second data packet flow ([0104] p6 Broadcast that identifies the port the packet should be sent to).

Regarding **Claim 17**. Kadambi teaches:

A method for allocating (Once the higher priority queues achieve their minimum bandwidth value, class of service manager 133 allocates any remaining bandwidth based upon any occurrence of exceeding the maximum bandwidth for any one priority queue Page 32 para 394 lines 15-20) data packet flows among a plurality of data

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channels of a network node, comprising steps of: classifying (classify and forward traffic entering the switch based upon predetermined policies para 292 p 22 lines 17-18.

based upon the packet classification, actions including sending of the packet to other ports, sending the packet on certain priority queues Para 236 P 17 lines 9-12, sending the packets to a mirrored port Para 239 p 17 lines 3-6) data packets to be transmitted via said data channels into a plurality of data packet flows, wherein a first data packet flow queues in a first data channel to be transmitted, and a second data packet flow is assigned to said first data channel behind said first data packet flow; transferring said second data packet flow from said first data channel to another data channel to be transmitted (determining a flow rate of the first frame and the second frame entering the link aggregation environment. Then a step of determining if the flow rate exceeds a predetermined flow rate threshold is undertaken, and thereafter, a step of determining if the first frame and the second frame are candidates for link switching is completed. As a final step, the method switches a transmission link for the second frame from a first transmission link to a second transmission link para 7 p 1 lines 5-13) and transmitting a broadcast data packet ([0104] p6 Broadcast that identifies the port the packet should be sent to.) after said first data packet flow via said first data channel when the amounts of said first data packet flow, said second data packet flow and a third data packet flow queuing in said another data channel comply with a predetermined relationship (classify and forward traffic entering the switch based upon predetermined policies para 292 p 22 lines 17-18); and transmitting said second data packet in response to said broadcast

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data packet (the incoming packet is a broadcast packet, each egress manager 76 to which the packet is directed will receive the PID. [0392] p 31 lines 12-14).

Regarding **Claim 18**. Kadambi teaches:

wherein said predetermined relationship is that the sum of the amounts of said first data packet flow and said second data packet flow is greater than a threshold value (determining a flow rate of the first frame and the second frame entering the link aggregation environment. Then determining if the flow rate exceeds a predetermined flow rate threshold para 7 p 1), and the sum of the amounts of said third data packet flow and said second data packet flow is no greater than a threshold value (For every port, there is a low watermark and a high watermark; if cell count is below the low watermark, the packet is admitted [0167] p10 lines 3-6).

Regarding **Claim 19**. Kadambi teaches:

wherein said second data packet flow starts to be transferred (transferring multiple packets of data (line 13); transferring cells, checking active ports, queue availability [0403] p 33 lines 21-24) after said broadcast data packet is received by at least one of said data channels (if the incoming packet were a broadcast packet, each egress manager 76 to which the packet is directed will receive the PID [0392] p 31 lines 12-14), and if there is no data channel receiving said broadcast data packet at the end of a preset time period, said second data packet flow also starts to be transferred (the link is switched, determined by the preset threshold value [0450] p 38 line 17-18) (After every

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arbitration time period the next I/O module with a valid request would be given access to the C channel 81 [0090] p 5 lines 8-9) (A timer/counter has a preset time period, at the end of which the new port map is provided [0387] p 31 lines 5-9).

Regarding **Claim 20**. Kadambi teaches:

wherein said second data packet flow is the one assigned to said first data channel and having the least data packet amount at a certain time point (a second frame entering the link para 7 p 1 line 4).

Regarding **Claim 21**. Kadambi teaches:

wherein said broadcast data packet comprises an identifying code of said second data packet flow ([0104] p6 Broadcast that identifies the port the packet should be sent to.)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hooman Houshmand whose telephone number is 571-270-1817. The examiner can normally be reached on Monday - Friday 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on 571-272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

A handwritten signature in black ink, appearing to read "Xue-Pan", is located in the lower right quadrant of the page. The signature is fluid and cursive, with a large, stylized initial "X" and a trailing flourish.